



TECHNICAL SPECIFICATIONS

NEW KINGMAN-BUTLER SEWER EXPANSION 21PS12

Prepared for the Mohave County

by:

Sunrise Engineering, Inc

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TECHNICAL SPECIFICATIONS

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PART 100 - GENERAL CONDITIONS

SECTION 104 – SCOPE OF WORK

The following subsections are added to the MAG Standard Specifications.

104.01000 – Location and Project Boundaries:

The project is located within the New Kingman-Butler area within Mohave County, Arizona and encompasses work along N Sierra Road, from College Drive to Devlin Avenue, and along Devlin Avenue, from N Sierra Road to N Bank Street.

104.02000 – Scope of Work Overview:

The work consists of the installation of a new gravity sewer system connecting to the City of Kingman's existing gravity sewer system along Devlin Avenue, including gravity sewer pipe and sewer manholes. Refer to the Project's plans for further details.

SECTION 105 – CONTROL OF WORK

The following subsections are added to the MAG Standard Specifications.

105.01000 – Additional Reference Standards:

The following reference standards are added to the General Terms and Conditions and are incorporated by reference.

- A. Mohave County Engineering Design Standards, Specifications and Details, latest edition.
- B. City of Kingman Supplement to MAG Uniform Standard Specifications and Details for Public Works, latest edition.
- C. Maricopa County Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction latest edition.
- D. U.S. Department of Transportation, *Manual on Uniform Traffic Control Devices (MUTCD)*, latest edition.
- E. Latest revisions of ASTM, AWWA, ANSI or Federal specifications, standards and details, as applicable.
- F. In the event of a conflict between the Construction Drawings and the Contract language, the Contract language shall prevail.
- G. In the event of a conflict between (i) the ASTM, AWWA, ANSI or Federal specifications, standards and details and (ii) the Mohave County Engineering Design Standards, Specifications and Details, City of Kingman Supplement to MAG Uniform Standard

Specifications and Details for Public Works and MAG Uniform Standard Specifications and Details for Public Works Construction shall prevail.

- H. In the event of a conflict between the AWWA, ANSI or Federal specifications, standards and details and the Contract, the Contract shall prevail.
- I. In the event of a conflict between the MAG Uniform Standard Specifications and Details for Public Works Construction and the City Supplement to MAG Uniform Standard Specifications and Details for Public Works Construction and, the City Supplement to MAG Uniform Standard Specifications and Details for Public Works Construction shall prevail.
- J. Mohave County Mohave County Engineering Design Standards, Specifications and Details shall take precedent over all other Specifications and Details as designated in the plans.

105.20010 – Shop Drawings:

Prior to the Pre-Construction meeting, the Contractor shall submit, for review, a proposed schedule of shop drawings and product data submittals. This schedule and the subsequent submittals shall be prepared and submitted in conformance with the requirements of MAG Specifications Section 105.2 and as specified in the City MAG Supplement.

Item 105.30010– As-Built Documentation

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for providing complete and accurate as-built record document plans to the County. As-built plans shall reflect all in-place field dimensions, horizontal locations and vertical elevations for all constructed or installed improvements. All changes, additions and deletions shall be depicted graphically and represented numerically. All dimensions and elevations on the plan sheets must be verified.

The Contractor shall be required to keep a clean and current set of as-built plans on-site during the Project’s construction duration. The as-built plans must be kept up to date for each phase of construction throughout the Project’s construction duration. These as-built plans shall be subject to review each month by the County’s and City of Kingman’s Engineering Inspector(s) to verify compliance with this specification and will be part of the approval process for each of the Contractor’s monthly progress payments.

The Contractor shall be responsible for preparing and providing to the County all final as-built record documents for the Project using the most recent County approved plan sheets. An Arizona registered civil engineer or Arizona registered land surveyor shall seal the final as-built record documents. The final as-built record documents shall conform to the requirements of MAG Specifications Sections 105.8 and 105.15; and as specified in the City MAG Supplement. Changes to the original Plan Drawings shall be made by striking through the original information with a single line. The as-built changes shall be noted with the letters ‘AB’ after the correction. The as-built changes shall be shown in both plan and profile as appropriate. Changes in horizontal alignment shall be noted on the plan and tied down by stationing and offsets from the monument line. Any portions of the Work not constructed shall be clearly labeled “Deleted” or “not built”.

At project completion, the Contractor shall submit a final, clean, full-size set of blue/blackline record plan drawings showing the entire project with the as-built information as described above. This final set shall be prepared, reviewed and sealed by the Contractor's surveyor. The County shall review the final paper set for completeness and acceptability. If rejected, the Contractor shall correct or complete the as-built drawings and resubmit for an additional review. Once the bond set of redlines as-built plans are approved and accepted the as-built plans shall be submitted in duplicate digital files (DVD), in "PDF" format.

Measurement for the As-built Record Document Plans will be prorated (overall project percent completion) each month over the Project's duration. **Payment:** There will be no separate payment for the preparation and maintenance of as-builts. As-builts will be considered incidental to the project and other related items.

105.60010 – Cooperation with Utilities:

The following utility companies may have facilities in the area of this project. It shall be the Contractor's responsibility to determine the exact location of the utilities prior to any construction operations and to notify the below mentioned utility companies a minimum of five (5) working days prior to commencing any work on the project. Use caution and always follow all local Blue Stake laws.

City of Kingman	(928) 716-5545
Frontier Communications	(928) 727-6077
Suddenlink Communications	(928) 606-2464
Unisource Energy Services (Electric)	(928) 681-8924
Unisource Energy Services (Gas)	(928) 681-6506

Unisource Energy Services has overhead electrical facilities located throughout the project area. These facilities shall be protected in place during the construction. To protect in place, excavation around all Unisource Energy Services poles must be limited to one foot or less below grade. In instances where Unisource Energy Services overhead lines transition to underground lines at the base of pole, the Contractor will need to coordinate with Unisource Energy Services to provide an inspector on-site while the demolition/excavation is performed.

There are areas throughout the project where an overhead system cross. Caution and proper clearances should be taken into consideration when doing work directly below these facilities. Pole bracing is required when digging is within 4 ft of existing poles and depth of excavation is greater than 2 ft. It is the Contractor's responsibility to maintain minimum OSHA clearances from Unisource Energy Services overhead & underground facilities.

There are several areas throughout the project where the proposed sewer lines cross existing underground systems. Caution and proper clearances should be taken into consideration when doing

work in and around these facilities. Allow a minimum of 45-days to resolve undetermined conflicts that arise as a result of the construction of this project. When crossing Frontier Communications or Suddenlink Cable, the Contractor shall pothole to determine depth and maintain a minimum of 12 inches of vertical and horizontal separation from the proposed facility. Support and protect all facilities during construction. Utility companies do not maintain installation records of customer drops that may conflict with this project.

There are underground gas lines running throughout the Project length. During sewer line installation, care will need to be taken to maintain appropriate clearances from the gas line. Unisource Energy does not provide depth information for natural gas facilities. It is recommended that the Contractor evaluate each gas pipeline location by potholing to determine the exact elevation of the gas pipe. Prior to excavating, the Contractor must call Blue Stake at (928) 692-3122 so existing gas facilities may be accurately located. The Contractor should hand dig carefully at these marked locations until the gas pipe has been found and exposed. Use care to avoid damaging or breaking a small electrical tracer wire (which is used for locating purposes) that may be buried with the pipe. Any underground facility crossing the gas lines must have at least 12 inches face-to-face clearance at the point of crossing.

Once mechanical trenching is in progress, do not dig within two feet of a gas pipe. This trenching shall be done by hand in order to prevent any damage to the gas pipe. In the event the Contractor should “hook” or otherwise strain a gas pipe while excavating, a call shall be placed to (877) 837-4968.

Even though there may not be any apparent damage, the strain may have damaged the wrap or a portion of the buried pipe or fittings at other locations causing a leak in the surrounding area. Also, if a steel facility is exposed and the pipe coating is found to be in need of repair, contact the utility provider so a crew can be dispatched to rewrap the pipe.

When the excavations are complete, all exposed gas pipes shall be protected. If the trench is more than three feet wide, the pipe must be supported in a manner where the supporting material does not damage the pipe or its protective wrapping.

Unisource Energy requires six inches of bedding, one inch on the side and six inches of shading with sand or material free of rocks and able to pass through a 3/8 inch screen. This will provide a firm support under the facility and prevent damage to the pipe or pipe coating from the backfilling operation. Do not drop backfill directly over the gas pipe. During the compaction process, use extra care when directly over the gas pipe in order to avoid any damage.

In addition, the Unisource Energy system has Regulator Stations, pipeline valves, locating stations, test points and underground vaults each with protective valve box lids and vault manhole covers. These are designed to be flush with the existing ground. Under U.S. Dept. of Transportation’s Pipeline Safety Regulations and Unisource Energy operating procedures, these facilities are required to be accessible at all times.

Unisource Energy will paint yellow all protective valve box lids and vault manhole covers. It will be

the responsibility of the Contractor to make sure these are protected during construction. The Contractor will be responsible for adjustments to all valve box lids and vault manhole covers due to grading and paving per MAG Details 391.1 and 391.2. For emergencies, call (877) 837-4968.

Item 105.80010 – Construction Staking, Surveying and Layout

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for providing construction survey, staking and layout for the Project. This item shall comply with MAG Specification 105.8 and as modified by the City of Kingman Supplements to MAG standard specifications, Section 400.

The first two paragraphs of Section 105.8 shall be deleted in their entirety and replaced with the following:

“The Contractor will provide a Registered Land Surveyor (RLS) who will set construction stakes establishing lines and grades for road work, structures and centerlines for utilities and necessary appurtenances as he may deem necessary. The Engineer will furnish the Contractor with all necessary information relating to the lines and grades.

The Contractor provided RLS will be responsible for resetting any survey monuments as required by the plans and/or contract documents.”

Measurement for survey, staking and layout will be prorated (overall Project percent completion) each month over the Project’s duration. ***Payment:*** There will be no separate payment for the construction staking. Construction staking will be considered incidental to the project and other related items.

SECTION 106 – CONTROL OF MATERIALS

The following subsections are added to the MAG Standard Specifications.

106.20010 – Samples and Tests of Materials:

The Contractor shall provide quality control material testing and frequency as stated by MAG Specifications and the City of Kingman Supplements to MAG Standard Specifications Section 106. Compaction testing procedures for the pipe zone, final backfill and aggregate base course will be in accordance with MAG Section 601.4 and the City of Kingman Supplements to MAG Standard Specifications Section 601 except aggregate base shall be compacted to 100% when used for backfill. The sampling and testing point will be in-place at the minimum frequencies per the City of Kingman Supplements to MAG Standard Specifications Section 601.4.

The Contractor will be required to conduct compaction tests at a minimum of 500-foot intervals at two (2) foot vertical lifts or at the above stated frequencies, whichever is more stringent. **Water consolidation shall NOT be used for compaction.** The Contractor shall utilize mechanical compaction for all backfill and lifts shall not exceed a two (2) foot lift. Aggregate Base shall not exceed 6-inches per lift.

The Contractor shall obtain an independent laboratory or testing company and pay all costs required by the Contract Documents. A copy of all test results shall be furnished to the County's Project Manager in a Weekly Summary Report submitted at the weekly construction progress meeting (time and date to be set upon contract award) for tests performed from the preceding week. Before final completion, the Contractor shall submit a final testing report containing all testing results which certifies the work complies with the Contract Documents. This testing report shall be sealed by a Professional Civil Engineer, registered in the state of Arizona who was responsible for overseeing the testing and sampling for said company. Payment for material testing shall be considered incidental to the cost of this project.

SECTION 107 – LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

The following subsections are added to the MAG Standard Specifications.

107.10010 – Arizona Pollutant Discharge Elimination System (AZPDES)(Allowance):

This project is subject to the AZPDES Construction General Permit (CGP) requirements under the U.S. EPA National Pollution Discharge Elimination System (NPDES) Permit Program for Arizona. All subcontractors shall comply with all AZPDES CGP requirements under the supervision of the General Contractor and shall submit a completed, signed subcontractor certification form, thereby designating themselves as co-permittees. The Contractor will be expected to develop the Storm Water Pollution Prevention Plans (SWPPP) following the most recent Environmental Protection Agency (EPA) Approved SWPPP Template (found on the EPA website). Completed SWPPPs must be submitted to the County's project manager for review before a construction permit will be issued by the County. All sections of the most recent EPA Approved SWPPP Template must be complete in order for the County's project manager to initiate a review of the submitted SWPPP.

Subsequent to approval by the County's project manager, the Contractor will be expected to update/revise the approved SWPPP as necessary throughout the construction of the Project in order to ensure compliance with EPA, AZPDES, and CGP requirements. Revisions to the SWPPP or any other additional items, shall be subject to approval by the County prior to implementation. The SWPPP document shall be kept at the project site at all times. The final SWPPP document shall be retained by the Contractor for three years following project completion and final acceptance by the County.

The Contractor will be responsible to make submittals to the appropriate agencies. This department requires a submittal, fees, and process in addition to the standard NPDES requirements. In addition, portions of this project are in the vicinity of the Mohave Wash and may require a special review or process from ADEQ.

The Contractor shall submit a completed, signed Notice of Intent (NOI) form (including the signed subcontractor certification forms) to the Arizona Department of Environmental Quality (ADEQ), Water Permits Section/Storm Water NOI (5415B-3), 1110 W. Washington Street, Phoenix, Arizona 85007; or fax to (602) 771-4674, or online at ADEQ's Smart NOI Web site at: <https://az.gov/app/smartnoi/>. The NOI shall be posted at the construction site at all times.

Failure by the Contractor (or any applicable subcontractors) to submit the NOI forms and certifications to ADEQ, and/or the SWPPP to the City's project manager for review, by the start of construction, activities will lead to delays in meeting EPA requirements, which will result in delay of the start of construction. The Contractor will not be entitled to any additional compensation for costs resulting from such delay of the construction start date and/or any construction activities. No construction activities shall begin until all applicable storm water pollution control devices are in place. Any additional work or costs caused by the Contractor's (or subcontractor's) failure to properly implement the SWPPP shall not be considered for compensation. The Contractor shall keep a copy of the latest STORM WATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES as printed in the Federal Register at the job site at all times. The Contractor shall keep a copy of the STORM WATER BASELINE CONSTRUCTION GENERAL PERMIT COVERAGE NOTICE received from ADEQ (after submittal of the NOI) at the job site at all times.

All SWPPP reports required under this contract shall be available to the public in accordance with the requirements of Section 308(b) of the Clean Water Act. The Contractor shall make plans available to the public upon request through the EPA. No conditions of the Arizona General Permit or the SWPPP shall release the Contractor from any responsibilities or requirements under other environmental statutes or regulations. Asphalt plant and concrete plants (including mobile plants) require separate AZPDES industrial permits.

Upon completion and acceptance of the work performed by a subcontractor co-permittee, either the Contractor or other subcontractors shall absolve such subcontractor of any involvement in, or responsibility for, any subsequent AZPDES violations on the project. After project completion, acceptance, and de-mobilization, the Contractor shall submit a completed, signed Notice of Termination (NOT) form to the ADEQ Water Permits Section/Storm Water NOT (5415B-3), 1110 W. Washington Street, Phoenix, Arizona 85007 or fax to (602) 771-4674, or online at ADEQ's Smart NOI Web site at: <https://az.gov/app/smartnoi/>.

At a minimum, the Contractor shall perform inspections in accordance with the scope and schedule specified in the most recent CGP Inspection and Corrective Action Report Form found on the ADEQ website. The Contractor is also encouraged to inspect all best management practices following all rainfalls, as it is the Contractor's responsibility to ensure the proper operation of each best management practice at all times. The Contractor shall maintain a record of each inspection. No other separate measurements or payments will be made relative to SWPPP items.

Measurement for AZPDES (NPDES) SWPPP will be prorated (overall project percent completion) each month over the project's duration. **Payment** shall be made at the Lump Sum price and shall be considered full compensation for this work item.

107.20010 – Permits

The Mohave County Engineering Right-of-Way Permit fee will be waived for this project. All other required permits shall be the Contractor's responsibility to obtain and pay for. Water for the project will be provided by the City of Kingman Water Dept. at their costs. The Contractor is required to pay a deposit and call-in monthly reads to the City of Kingman's Water Dept. The cost for all permits

shall be considered incidental and be included in the Contractor's price.

SECTION 108 – COMMENCEMENT, PROSECUTION AND PROGRESS

The following subsections are added to the MAG Standard Specifications.

108.50010 – Limitation of Operations and Sequencing of Construction:

The Contractor shall be aware of and coordinate this Project's Work with any other ongoing construction and/or traffic control in the immediate vicinity of the Project area.

Night and weekend work is NOT typically allowed for mainline utility construction unless specifically pre-approved by the County in writing. Night work may be considered for water and sewer connections when low flow conditions are required to better facilitate connections into the existing water or sewer systems. The Contractor shall assume no night or weekend work for this Project.

SECTION 109 - MEASUREMENTS AND PAYMENTS

The following subsections are added to the MAG Standard Specifications.

109.00010 – General

Item Numbers listed herein correspond to the MAG Specifications sections.

Measurement for each item shall be completed in the units installed or percent complete as indicated on the plans. Measurement shall be for all work that is satisfactorily completed in place, with no allowance for waste, and that which is verified by field measurements as applicable. The Contractor is responsible for coordinating quantity measurements with the County Engineering Inspector or designated representative. Quantity measurements will not be accepted for payment without County approval.

In general, payments to the Contractor shall be in accordance with the Contract Documents. Specific item payment guidelines shall be in accordance with the MAG Specifications as applicable unless as revised or more particularly described in these Technical Specifications. Payment will be made at the Unit Price or Lump Sum price and shall constitute payment in full for furnishing all materials, equipment, appurtenances, labor, plant and tools necessary to provide a complete Project in a workmanlike and satisfactory manner as shown by the Plan Drawings and in the Contract Documents described herein.

Item 109.10010 – Mobilization/Demobilization

The work under this item shall consist of furnishing all materials, equipment, and labor necessary to provide the Contractor compensation for trip mobilization/demobilization of the Contractor's personnel equipment, supplies and incidentals, establishment of offices, buildings and other facilities, required for the performance of the work on the Project, including preparatory work and operations prior to the commencement of the work on the Project site.

Measurement and Payment for mobilization and demobilization shall be done in two equal parts of the Contractor's Item Lump Sum price. The first half payment shall be included in the Contractor's initial invoice and the second half payment shall be made after the Project has reached Substantial Completion as declared by the County and shall be considered full compensation for this work item.

PART 300 - STREETS AND RELATED WORK

Item 336.001 – Asphalt Replacement per Modified Mohave County Standard Detail 200-1
(This Specification corresponds to Hardscape Note 6A in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the preparation, placement and compaction of permanent asphalt concrete pavement replacement, in accordance with the Modified Mohave County Standard Detail 200-1, Mohave County Standard Detail No. 60, MAG Specification Sections 321, 336 and 710; and per the project plan documents. **All lane striping and temporary and permanent striping shall be included in the cost of the pavement replacement.** The asphalt thickness shall match the pavement section details on the construction plans if provided or per the County's Standard Detail 200-1 or match existing asphalt depths, whichever is greater. The asphalt concrete pavement shall be placed in two lifts if the asphalt depth is 4-inch or greater. The Contractor shall submit a design mix in accordance with MAG Spec Sections 321.5 and 710.3. Paving shall not commence until the County or authorized representative has accepted the underlying backfill base material and grade. Backfill shall be in accordance with the Modified Mohave County Standard Detail 200-1, as shown in the plans. Pipe bedding shall be in accordance with Section 615.001 herein.

Measurement shall be per each Square Yard installed based on the field measured trench length and the MAG Trench Pay Width per MAG Specifications Section 336.4 using Table 601-1; except that all pay widths shall be computed per Section 336.4; unless otherwise specified by a specific trench cross-section. **Payment** shall be made at the unit price and shall be considered full compensation for this work item. No payment will be made for additional pavement replacement as a result of a wider trench excavation.

Traffic control set-up and maintenance shall be the responsibility of the Contractor. Unless otherwise directed, streets with new pavement or new pavement re-surface treatments shall not be open for public traffic use until all permanent pavement marking is complete, or until temporary striping and/or temporary traffic control (barricades) have been provided in accordance with an approved plan.

Item 336.002 – Asphalt Replacement per Modified MAG Standard Detail 200-1/200-2
(This Specification corresponds to Hardscape Note 6B in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the preparation, placement and compaction of permanent asphalt concrete pavement replacement, in accordance with the Modified MAG Standard Detail 200-1/200-2, Mohave County Standard Detail No. 60, MAG Specification Sections 321, 336 and 710; and per the project plan documents. **All lane**

striping and temporary and permanent striping shall be included in the cost of the pavement replacement. The asphalt thickness shall match the pavement section details on the construction plans if provided or per the modified MAG Detail 200-1/200-2 or match existing asphalt depths, whichever is greater. The asphalt concrete pavement shall be placed in two lifts if the asphalt depth is 4-inch or greater. The Contractor shall submit a design mix in accordance with MAG Spec Sections 321.5 and 710.3. Paving shall not commence until the County or authorized representative has accepted the underlying backfill base material and grade. Backfill shall be in accordance with the Modified Mohave County Standard Detail 200-1, as shown in the plans. Pipe bedding shall be in accordance with Section 615.001 herein.

Measurement shall be per each Square Yard installed based on the field measured trench length and the MAG Trench Pay Width per MAG Specifications Section 336.4 using Table 601-1; except that all pay widths shall be computed per Section 336.4; unless otherwise specified by a specific trench cross-section. **Payment** shall be made at the unit price and shall be considered full compensation for this work item. No payment will be made for additional pavement replacement as a result of a wider trench excavation.

Traffic control set-up and maintenance shall be the responsibility of the Contractor. Unless otherwise directed, streets with new pavement or new pavement re-surface treatments shall not be open for public traffic use until all permanent pavement marking is complete, or until temporary striping and/or temporary traffic control (barricades) have been provided in accordance with an approved plan.

Item 340.001 – Curb and Gutter per MAG Standard Detail 220-1
(This Specification corresponds to Hardscape Note 7 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the replacement of concrete curb and gutter as shown on the project plan documents. All concrete curb and gutter work shall be constructed in accordance with MAG Specification Sections 301, 340, 725, 729, MAG Standard Detail 220-1 and any COK Supplements to the MAG Specifications. The Contractor shall verify line and grade prior to placing any concrete.

Measurement for installation of concrete curb and gutter will be per each linear foot. **Payment** shall be made at the unit price and shall be considered full compensation for this work item.

Item 340.002 – 7' Wide Concrete Drainage Apron
(This Specification corresponds to Hardscape Note 10 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the replacement of the concrete drainage apron as shown on the project plan documents. All concrete work shall be Class A concrete per MAG Specification Section 725. The Contractor shall verify existing line, grade, and thickness prior to removing and placing any concrete. The Contractor shall match existing line, grade, and thickness for the new drainage apron.

Measurement for installation of concrete drainage apron will be per each square foot. **Payment** shall

be made at the unit price and shall be considered full compensation for this work item.

Item 350.001 – Sawcut and Remove Existing Asphalt and/or Asphalt Millings

(This Specification corresponds to Removal Note 1 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for removing existing asphalt concrete pavement and/or asphaltic millings as needed for trench excavation and other underground pipeline utility construction. Pavement removal shall be in accordance with the City of Kingman Supplements to MAG standard specifications Section 336.2.2 and MAG Standard Specification Sections 336 and 350. The Contractor is responsible for protecting all adjacent pavement and concrete. The pavement removal operation shall not damage any underground utilities that are to remain in place. The Contractor shall include all removal related costs in this item work including saw cut, milling, loading, hauling, off-site disposal and clean-up. All final locations and dimensions shall require approval from the County Engineering Inspector before any removals can start.

Measurement shall be per each Square Yard of area removed based on the field measured trench length and the MAG Trench Pay Width per MAG Specifications Section 336.4 using Table 601-1.

Payment shall be made at the unit price and shall be considered full compensation for this work item.

Item 350.002 – Remove Existing Curb and Gutter to the Nearest Joint

(This Specification corresponds to Removal Note 2 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the removal of existing curb and gutter to the nearest joint as shown on the project plan documents. All flat concrete removals shall be in accordance with MAG Standard Specifications Section 350. The Contractor shall include all removal related costs in this item work including sawcut, loading, hauling and off-site disposal. All final locations and dimensions shall require approval from the County Engineering Inspector before any removals can start.

Measurement for removal of curb and gutter will be per each linear foot. ***Payment*** shall be made at the unit price and shall be considered full compensation for this work item.

Item 350.003 – Remove/Salvage Existing Sign

(This Specification corresponds to Removal Note 3)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the removal and salvaging of existing roadside signage as shown on the project plan documents. All sign removals and salvage shall be in accordance with MAG Standard Specifications Section 350 and 401. The Contractor shall make note the original orientation and height of the sign for future replacements.

It is the responsibility of the Contractor to ensure the sign remains in clean and re-usable condition and, if stored or stockpiled for future use, remains in a secure location to prevent damage, theft or

vandalization. If damage, theft or vandalization occurs, the Contractor shall be responsible for any costs associated with repair or replacement of the sign. The Contractor shall include all removal related costs in this item work including sawcut, loading, hauling and off-site disposal. All final locations and dimensions shall require approval from the City Engineering Inspector before any removals can start.

Measurement for removal and salvage of signs will be per each. **Payment** shall be made at the unit price and shall be considered full compensation for this work item.

Item 350.004 – Remove Existing Driveway Culvert

(This Specification corresponds to Removal Note 4 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the removal and disposal of the existing driveway culvert. The Contractor shall include all removal related costs in this item work including loading, hauling and off-site disposal.

The Contractor shall take note of the existing pipe type, diameter, orientation and slope of culvert prior to removal to ensure replacement of culvert matches existing (or better) conditions.

Measurement for removal of the culvert will be per each unit removed. **Payment** shall be made at the unit price and shall be considered full compensation for this work item.

Item 350.005 – Remove 7' Wide Concrete Drainage Apron

(This Specification corresponds to Removal Note 5 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the removal of the existing drainage apron. All flat concrete removals shall be in accordance with MAG Standard Specifications Section 350. The Contractor shall include all removal related costs in this item work including sawcut, loading, hauling and off-site disposal.

Measurement for removal of the drainage apron will be per each square foot. **Payment** shall be made at the unit price and shall be considered full compensation for this work item.

PART 400 - RIGHT-OF-WAY AND TRAFFIC CONTROL

Item 401.001 – Traffic Control (Allowance)

The Work performed under this item shall consist of providing all required traffic control barricades, devices, signage, temporary paint pavement markings (striping), flagmen set-ups, pilot cars and other related maintenance as necessary, in accordance with MAG Standard Specification Section 401, the latest edition of MUTCD and the City of Kingman Supplements to MAG standard specifications as applicable. Traffic Control shall be further defined by site specific pre-approved traffic control plans (TCPs) and such costs consisting of preparing and submitting ATSSA certified traffic control plans for approval shall be included. Plans must be submitted to Mohave County for review and approval

a minimum of three (3) Business Days (Monday to Friday) prior to the start of the related work. The plans must be complete, detailed and meet MAG and MUTCD requirements.

Road closures for convenience of the Contractor shall not be allowed. During construction activities, a minimum of two thru lanes, one each direction, shall remain open at all times. Provisions shall be made to allow for left turns including dedicated turn bays at all signalized intersections and other major collector cross-street intersections, unless otherwise specifically pre-approved by the County. Any activities that will affect peak time traffic shall be pre-approved for times, days, and method by the County prior to implementation.

It shall be the responsibility of the Contractor to provide, erect, maintain, remove and/or relocate all temporary and existing traffic control devices and signal indications necessary to properly mark and control the construction area(s) for the safe and efficient movement of all roadway users including pedestrians. The Contractor shall inspect and maintain all installed temporary traffic control devices at least once during a twenty-four (24) hour period. More frequent intervals of inspection and maintenance shall be made during periods of high winds or other detrimental conditions including a continuing problem maintaining the signs and devices. All temporary traffic control devices shall be ballasted with sandbags.

The work shall not start until the traffic control plans have been approved by the County. Payment for uniformed off-duty police officers shall be paid under a separate item as an allowance.

Measurement and Payment shall be based on County-approved time and material invoices for an amount not to exceed two hundred and twenty-five thousand dollars (\$15,000.00) and shall be considered full compensation for this work item. The Contractor is responsible for all costs incurred in replacing lost or damaged traffic control devices and traffic control warning signs.

Item 401.002 – Uniformed Off-Duty Officer (Allowance)

This item shall consist of providing a Uniformed Off-Duty Police Officer to coordinate and direct on-site traffic control when construction activities are within 150 feet of a signalized street intersection and the activities impact traffic movement, or as otherwise required or directed by the County. Prior approval of the use of a Uniformed Off-Duty Police Officer shall be obtained from Mohave County. The City of Kingman Police Department shall have the first right of refusal to provide the service. Contractor shall provide at least 72 hours of prior notice. Contractor shall contact Kingman PD admin (adminpd@cityofkingman.gov) or at (928) 753-2191 Monday through Friday between 6:00 am and 4:00 pm to schedule a Uniformed Off-Duty Police Officer. If the Contractor contracts directly with the City of Kingman Police, then the Contractor will be responsible to provide worker's compensation insurance coverage.

Measurement and Payment for a police officer shall be on an hourly basis (as needed or requested) and shall be paid for using Traffic Control Allowances (Item 401.000).

Item 401.003 – Install Salvaged Sign

(This Specification corresponds to Hardscape Note 8 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for the replacement of salvaged signs as shown on the project plan documents. All signage, posts and anchors shall be constructed in accordance with MAG Standard Specification 401 and Mohave County Standard Detail 131-2. The Contractor shall place the salvaged sign back in place where they originally were, in the original orientation and height. Placement of the sign shall be verified and accepted by the County or authorized representative prior to final replacement of the sign.

Measurement for installation of salvaged sign will be per each unit. **Payment** shall be made at the unit price and shall be considered full compensation for this work item.

Item 405.001 – Survey Monuments per MAG Standard Detail 120, Type B

(This Specification corresponds to Hardscape Note 12 in the plans)

The work under this item shall consist of furnishing and installing the survey monument, concrete base, and all other materials needed. The concrete will be class B and constructed in accordance with MAG Standard Specification Sections 725 and 505. The Monuments may be cast in drilled holes without forms and set vertically in the ground. Before the concrete has acquired its initial set, the brass cap shall be firmly embedded in the concrete cylinder. The cylinder shall be located so accurately that the reference point will fall within a 1-inch circle from the center of the brass cap.

Measurement will be the number of units per each monument constructed and accepted. **Payment** shall be compensation in full for doing all the work involved in constructing the monument, complete in place, including preparing and recording a corner record or results of survey.

PART 600 - WATER, SEWER, STORM DRAIN AND IRRIGATION

Item 610.001 Water and Sewer Protection per City of Kingman Standard Detail 404-1

(This Specification corresponds to Gravity Sewer Note 19 in the plans)

The Work under this item shall consist of maintaining vertical clearances, providing concrete encasements and full-length pipe sections of sewer line with no joints directly over/under water pipe in accordance with MAG Standard Specification Section 601 and City of Kingman Standard Detail 404-1.

Measurement will be made at the unit price per each protection. **Payment** shall be compensation in full for the item complete in place.

Item 615.001 – 12-inch and 8-inch PVC, SDR 35 Gravity Sewer Line. Slope and Length per Profile. Trench and Backfill per City of Kingman Standard Detail A, Sheet 26.

(This Specification corresponds to Gravity Sewer Notes 13-14 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor for the installation of 12-inch and 8-inch PVC, SDR 35 sewer line as shown on the plans in accordance with

MAG Standard Specification Sections 601, 615 and City of Kingman Supplements to MAG standard specifications 601, 615 and 745 as applicable. Work shall include all excavation, shoring, bracing, installation, fittings, (flanged fittings, shall use **316 stainless steel bolts**), appurtenances, specials, adapters, pipe foundation and bedding, backfill, compaction, marking, flushing and testing.

Pipe Zone shall be installed per Detail A, Sheet 26 of the plans. Unless otherwise specified, trench backfill shall be per the Modified Mohave County Standard Detail 200-1.

The Contractor shall pothole to verify all utility conflicts and utility crossings which are known, marked (Blue Staked) or shown on the project plan documents in advance of pipeline construction/trenching activities to ensure and provide for the required clearances. Failure on the Contractor's behalf to adequately locate and verify the utility conflicts/crossings well in advance of any main line or lateral line trench excavation shall preclude any claims or extra costs by the Contractor for delays, stand-by time and/or any extra work for removals and reinstallation of proposed pipe and trenching. All adjacent utilities and perpendicular or transverse utility crossings shall be protected in place.

Measurement will be by the horizontal linear feet of installed pipe through all fittings and manholes. **Payment** shall be made at the unit price and shall be considered full compensation for furnishing and installing the pipe and fittings, specials, adapters, appurtenances, pipe foundation and bedding, backfill, compaction, marking, flushing and testing complete in place as called for in the plans. Asphalt pavement removal and replacement shall be paid by separate items.

Item 615.002 – Sewer Stub per City of Kingman Standard Detail 427. Size, Slope and Length per Plan.

(This Specification corresponds to Gravity Sewer Note 17 in the plans)

The work under these items shall consist of furnishing all materials, equipment, and labor for the installation of PVC SDR 35 sewer stubs as shown on the plans in accordance with MAG Standard Specification Sections 601, 615, City of Kingman Supplements to MAG standard specifications 601, 615 and 745 as applicable and City of Kingman Standard Detail 427. All PVC shall be in accordance with ASTM D2665, ASTM F1498 and be installed per ASTM D2321.

Work shall include all excavation, boring, shoring, bracing, installation, fittings, appurtenances, specials, adapters, pipe foundation and bedding, backfill, compaction, marking, surface improvements, flushing and testing. This work shall also include any sewer flow divergence needed to perform work. The Contractor shall coordinate with the County and/or their representative prior to any work performed.

Pipe Zone shall be installed per Detail A, sheet 25 of the plans. Unless otherwise specified, trench backfill shall be per the Mohave County Standard Detail 200-1.

The Contractor shall pothole to verify all utility conflicts and utility crossings which are known, marked (Blue Staked) or shown on the project plan documents in advance of pipeline

construction/trenching activities to ensure and provide for the required clearances. Failure on the Contractor's behalf to adequately locate and verify the utility conflicts/crossings well in advance of any main line or lateral line trench excavation shall preclude any claims or extra costs by the Contractor for delays, stand-by time and/or any extra work for removals and reinstallation of proposed pipe and trenching. All adjacent utilities and perpendicular or transverse utility crossings shall be protected in place.

Measurement will be for furnishing and installing each sewer stub from the proposed manhole to the sewer stub, through all fittings. **Payment** shall be made at the unit bid price per each and shall be considered full compensation for furnishing and installing the pipe and fittings, specials, adapters, appurtenances, pipe foundation and bedding, backfill, compaction, marking, flushing and testing complete in place as called for in the plans. Asphalt pavement removal and replacement shall be paid by separate items.

Item 615.003 – Sewer Lateral per City of Kingman Standard Detail 440-3. Connect Existing Sewer Lateral to Proposed Gravity Main.

The work under these items shall consist of furnishing all materials, equipment, and labor for the installation of PVC SDR 35 sewer laterals as directed in accordance with MAG Standard Specification Sections 601, 615, City of Kingman Supplements to MAG standard specifications 601, 615 and 745 as applicable and City of Kingman Standard Detail 440-3. All PVC shall be in accordance with ASTM D2665, ASTM F1498 and be installed per ASTM D2321.

For sewer laterals that connect or “tap” into manholes, the bases of those manholes shall be formed with the invert of the sewer laterals matching the invert of the outgoing pipe, similar to City of Kingman Standard Detail 420-1.

Work shall include all excavation, boring, shoring, bracing, installation, fittings, appurtenances, specials, adapters, forming of manholes, pipe foundation and bedding, backfill, compaction, marking, surface improvements, flushing and testing. This work shall also include any sewer flow divergence needed to perform work. The Contractor shall coordinate with the County and/or their representative prior to any work performed.

Pipe Zone shall be installed per Detail A, sheet 26 of the plans. Unless otherwise specified, trench backfill shall be per the MAG Modified Detail 200-1/200-2 for Mohave County Sewer Project on Sheet 26 of the plans.

All sewer service laterals shall have a minimum of four (4) feet of cover. The invert elevations of the sewer service laterals at the lot lines are depicted in the plans. The maximum depth of the sewer service laterals, in conjunction with the required slope indicated in City of Kingman Standard Detail 440-3 shall be maintained to provide the most optimal future connection for each parcel at the property lines.

The Contractor shall pothole to verify all utility conflicts and utility crossings which are known,

marked (Blue Staked) or shown on the project plan documents in advance of pipeline construction/trenching activities to ensure and provide for the required clearances. Failure on the Contractor's behalf to adequately locate and verify the utility conflicts/crossings well in advance of any main line or lateral line trench excavation shall preclude any claims or extra costs by the Contractor for delays, stand-by time and/or any extra work for removals and reinstallation of proposed pipe and trenching. All adjacent utilities and perpendicular or transverse utility crossings shall be protected in place.

Measurement will be by the horizontal linear feet of installed service pipe through all fittings and manholes/clean-outs. **Payment** shall be made at the unit bid price and shall be considered full compensation for furnishing and installing the pipe and fittings, specials, adapters, appurtenances, manhole base forming, pipe foundation and bedding, backfill, compaction, marking, flushing and testing complete in place as called for in the plans. Asphalt pavement removal and replacement shall be paid by separate items.

Item 621.001 – Driveway Culvert Replacement

(This Specification corresponds to Hardscape Note 9 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor for the replacement of the culvert under the driveway. The size and length of the pipe shall match the existing pipe and installed to the original depth and slope to ensure flow through the pipe. Furnish the driveway to original state as it was before excavating.

Measurement will be for furnishing and installing each unit per culvert installed. **Payment** shall be made at the unit bid price and shall be considered full compensation for installing the culvert and returning the driveway to original condition.

Item 625.001 – 4-foot Diameter Pre-Cast Concrete Manhole, Base, 30-inch Frame and Cover per City of Kingman Standard Detail 420-1 and MAG Standard Detail 423-2. Invert as Noted in Profile

(This Specification corresponds to Gravity Sewer Note 15 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor for installing a new 4-foot diameter precast concrete sewer manhole in accordance with MAG Standard Specifications, any COK Supplements to the MAG Specifications, City of Kingman Standard Detail 420-1 and MAG Standard Detail 423-2. The depth of new manholes varies and shall be as indicated in the project plans.

Approved water stops are to be provided at all joints. The interior concrete riser walls and tops (100% of the interior of the manhole) are to be coated with an approved waterproof corrosion resistant sealant.

Manhole access frames and covers shall be cast iron in conformance with MAG Standard Specification 787 and MAG Standard Details 424. Lettering on covers is to read "Sanitary Sewer".

Any manholes that are receiving forced sewer flows (i.e. sewer flows from force mains) shall receive a corrosion protective coating per MAG Specification 626.

The Contractor shall include all removals, installations, connections, backfill and surface restoration related costs in the work for this item including saw cutting, loading, hauling, off-site disposal, backfilling and surface restoration. New manholes and ties to existing manholes shall be constructed to allow no subsidence in the surrounding asphalt by either 100% ABC placement using mechanical compaction methods around the entire manhole or by the placement of one-sack ABC slurry backfill per Mohave County Standard Detail 200-1 in the area between the manhole and the surrounding undisturbed earth material.

For new manholes installed with connection to existing sewer lines, this work shall also include any sewer flow divergence needed to perform work. The Contractor shall coordinate with the County and/or their representative prior to any work performed.

Measurement for furnishing and installing each manhole with frame and cover set to finish grade, complete with formed invert, concrete foundation, ladder rungs, cast iron frame and cover, concrete collar, excavation and backfill, paving cut replacement in excess of the applicable pay widths authorized in section 336, and any incidentals thereto in conformance with the plans and specifications, will be per each. **Payment** shall be made at the unit price bid per each and shall be considered full compensation for this work item.

Item 625.002 – Connection to Existing Sewer Stub

(This Specification corresponds to Gravity Sewer Note 16 in the plans)

The work under this item shall consist of furnishing all materials, equipment, and labor for connecting to existing sewer stub in accordance with MAG Standard Specifications and any COK Supplements to the MAG Specifications. The Contractor shall verify the exact location and invert of the existing sewer stub prior to connection.

The Contractor shall include all removals, installations, connections, backfill and surface restoration related costs in the work for this item including saw cutting, loading, hauling, off-site disposal, backfilling and surface restoration. The existing sewer stub and adjacent manhole shall be protected in place. Any damage incurred to the existing sewer stub and/or adjacent manhole shall be repaired or replaced at the Contractor's expense.

This work shall also include any sewer flow divergence needed to perform work. The Contractor shall coordinate with the County and/or their representative prior to any work performed.

New manholes and ties to existing manholes and stubs shall be constructed to allow no subsidence in the surrounding asphalt by either 100% ABC placement using mechanical compaction methods around the entire manhole or by the placement of one-sack ABC slurry backfill per Mohave County Standard Detail 200-1 in the area between the manhole/sewer stub connection and the surrounding undisturbed earth material.

Measurement for the connection to existing gravity sewer stub will be per each. ***Payment*** shall be made at the unit price and shall be considered full compensation for this work item.

END OF TECHNICAL SPECIFICATIONS